

Relative Superiority of Computer Assisted Instruction Over Traditional Methods In Learning Concepts of Mathematics

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ABSTRACT : The focus of the present study is to make a comparison between CAI and traditional methods in learning concepts of Mathematics. The sample comprising of 120 school students of 10th class of two schools of Amritsar city. The analysis was found that the performance of the Xth class students taught through CAI has been better as compared to those taught through traditional methods. The students remain actively involved in the lesson and become willing participants in the demonstration.

Education is a life long process. Man learns something everyday and every moment. The concept of education has been changing from time to time and from person to person, due to various social, cultural and scientific changes. The modern era has witnessed revolutionary changes, which were unprecedented in the recorded history of the world civilization. With the dawn of this century, a new brand of knowledge known as science emerged. The application of scientific knowledge to the practical task of life formed a new area named as technology. It dominated all the facts of the life in the advanced societies of the world. Education system is also influenced by advancement in science and technology.

Educational technology is an applied subject, which aims at maximizing learning by the use of scientific and technologist methods. It has helped in improving the task of a teacher, facilitating the process of teaching – learning and enriching the aims of education by designing and implementation of instructional devices like computer, overhead projector, mass media program in education etc.

Computer Assisted Instruction is a out growth of the application of the principles of programmed learning. As we know, the main objective of programmed learning is to provide individualized instructions to meet the special needs of individual learners. To accomplish this objective, it needs an efficient & flexible device that can store a massive amount of organized information and use a selected portion to meet the needs of individual learners. The computer is such a device that can cater to the needs of individual learners by storing & processing massive amount of information. It can serve a large variety of educational needs which range widely with respect to educational levels, subject matter, style of instruction and level of learning from simple drill to problem solving. Thus, Computer Assisted Instruction is a method of instruction in which there is a purposeful interaction between a learner and computer device for helping the individual learner to achieve the desired instructional objectives at his own pace and abilities, at his command.

The aim of the study is to make a comparison between Computer Assisted Instruction and Traditional methods in teaching Mathematics. Mathematics is considered as dull & boring subject. In traditional methods of teaching, the same lecture is delivered to all the students present in the class, points are written and some diagrams are drawn by the teacher on the blackboard. Only teacher plays active role in this process & students play passive role in the classroom teaching. But nowadays, conditions are going to change, both students and

teachers equally participate in teaching- learning process. Students are more anxious to know the logic behind every formula and step in solving problems of mathematics. The use of technology is an important device in the hands of teacher to remove students' queries.

Objectives of the study

To acquaint the students with the role of computers in learning the concepts of Mathematics.

To make the students conscious about the role of Computer Assisted Instruction in Education.

To assist the students in understanding various concepts of Mathematics with the help of computers.

To make the teachers conscious about the role of Computer Assisted Instruction for teaching the concepts of Mathematics.

Hypothesis: There will be no significant difference in the achievement of the students who have learnt the concepts of Mathematics either by Traditional Methods or by Computer Assisted Instruction.

Method of Study: Sample, Design, Tools and Procedure of the study: -

Type: Experimental Study

Sample – 120 Students of 10th Class

60 students of Arya Senior Secondary School, Amritsar.

60 students of B.K.E & I Senior Secondary School, Amritsar.

Tools

Intelligence test of Dr. Jalota was used to equate the students on the basis of their I.Q. and Achievement test prepared by the Investigator to test the achievement of the students in Mathematics.

Procedure: Randomized sampling technique was used. Two schools of Amritsar city were selected. 60 students from each institute. These 60 students were again divided into two groups viz. control and experimental on the basis of their scores in the intelligence test conducted by the Investigator. The I.Q level of the students of both the groups was equated. Out of these two groups one group was taught by Traditional Method i.e. Control group and other was taught by Computer Assisted Instruction i.e. experimental group. Then after teaching the concepts of Mathematics, the achievement of students was compared with the help of an achievement test prepared by the Investigator.

Results of the study

Table (a) :- Showing the Mean & Standard Deviation (S.D) of students on the basis of Intelligence level in each school of two groups.

Sr. No.	Name of the school	Statistics of control group	Statistics of experimental group
1	Arya Senior Secondary school, Amritsar	Mean = 66.26 S.D = 19.65	Mean = 66.0 S.D = 19.48
2.	B.K.E & I Senior Secondary school, Amritsar.	Mean = 70.03 S.D = 22.53	Mean = 70.17 S.D = 22.62

Discussion based on table (a)

After the administration of Dr. Jalota's test of General Mental Ability, the students of each school were equated on the basis of their IQ. From the table (a) it is clear that mean and S.D of control group as well as experimental group is approximately equal in each school. It is also clear that the mean scores of B.K.E & I Senior Secondary School, Amritsar (70.08) is greater than the mean score of Arya Senior Secondary School, Amritsar (66.35). After getting two equated groups on the basis of intelligence

test, one group was taught by Traditional Methods and other was taught by Computer Assisted Instruction. Then after teaching all the selected concepts of Mathematics the achievement of students was compared with the help of an achievement test prepared by the investigator herself.

Table (b) : SHOWING MEAN, S.D AND 't' VALUE OF ACHIEVEMENT OF STUDENTS OF TWO GROUPS IN ARYA SENIOR SECONDARY SCHOOL, AMRITSAR.

Name of the school	Statistics	Control group (N=30)	Experimental group (N=30)	't' value	Remarks
Arya Senior Secondary School, Amritsar	Mean	74.8	86.33	3.43	* Significant
	S.D	9.172	15.913		

Discussion based on Table (b)

Mean score of achievement test of the students taught by Traditional Methods was 74.8 and the mean score of achievement test of students taught by Computer Assisted Instruction came out to be 86.33. The difference of mean is (86.33-74.8) i.e. 11.533. The 't' value calculated is 3.43 which is significant at 0.01 level of significance. This significant 't' value

is in favor of experimental group that had been taught through Computer Assisted Instruction ensure that performance of students can be improved by teaching through Computers.

Table (c): SHOWING MEAN, S.D AND 't' VALUE OF ACHIEVEMENT OF STUDENTS OF B.K.E & I, SENIOR SECONDARY SCHOOL, AMRITSAR.

Name of the school	Statistics	Control group (N=30)	Experimental group (N=30)	't' value	Remarks
B.K.E & I Senior Secondary School, Amritsar	Mean	78.13	87.46	2.84	* Significant
	S.D	13.726	12.05		

* Significant at 0.01 level of significance

Discussion based on Table (c)

It is clearly indicated that mean of Achievement test of the students taught by Traditional Method came out to be 78.13 and the mean of achievement test of the students taught by the Computer Assisted Instruction is observed to be 87.46. The 't' value calculated from mean is 2.84, which is significant at 0.01 level of significant. Higher mean score in favour of the group taught by Computer Assisted Instruction justifies the role and importance of computer in teaching.

we reach at the conclusion that there is a significant difference in the achievement level of students taught by Traditional Methods and students taught by Computer Assisted Instruction. The students who were taught with the help of Computer Assisted Instruction showed better results than students who were taught with Traditional Methods. It was seen that the students exhibited keen interest in the study when they were being taught with the help of computer.

Thus, hypothesis formulated in the beginning was rejected. There is a significant difference in the achievement level of students taught by Traditional Method and students taught by Computer Assisted Instruction. The students taught by CAI showed better performance than those taught by Traditional methods.

On the basis of above discussion carried in Table (b) and Table (c), we reject the null hypothesis formed in the beginning i.e. there is no significant difference in the achievement of the students who have learnt the concepts of Mathematics either by Traditional Methods or by Computer Assisted Instruction. Thus,

Major Findings : On the basis of analysis of data following findings may be crystallized.

1. The performance of the Xth class students taught through Computer Assisted Instruction has been better as compared to those taught through traditional methods.
2. Mathematics can be taught in better way through the Computer Assisted Instruction.
3. The students remain actively involved in the lesson and become willing participants in the demonstration.
4. They get first hand experience by observing concrete objects on the monitor.
5. If Mathematics is taught through lecture and other traditional methods, the students remain passive listeners. They become disinterested in the subject, feel bored and yawn in the classroom.
6. Computer as an Audio-Visual aid is effective in improving teaching of Mathematics.

Educational Implications : The present research has clearly shown the shifting from traditional methods of teaching

to a modern classroom using Computer Assisted Instruction enhances the acquisition of mathematics concepts of the students. The results of the research suggested that while teaching students through Computer Assisted Instructions, self-pacing and flexibility are the major advantages to the learners which lead to propose that such a strategy is more effective than traditional teaching methods.

Bibliography

- [1] Kausar, T. Chaudhry, B.N. & Gujjar, A. (2008). A Comparative study to evaluate the effectiveness of Computer Assisted Instruction versus class room lecture for computer science at ICS level. Online Submission, The Turkish Online Journal of Educational Technology.
- [2] Sandhu, H.(2002). A Comparative Study of Computer Assisted Instruction & Traditional method in learning certain concepts of geography.
- [3] Z.hang, Y.(2005). An experiment on mathematics pedagogy: traditional method versus Computer Assisted Instruction.